UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/783,696	02/20/2004	William Chen	AP190HO	1789

20178   7590   12/23/2008
EPSON RESEARCH AND DEVELOPMENT INC
INTELLECTUAL PROPERTY DEPT
2580 ORCHARD PARKWAY, SUITE 225
SAN JOSE, CA 95131

EXAMINER
RAO, ANAND SHASHIKANT

ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
12/23/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/783,696	CHEN, WILLIAM
	Examiner	Art Unit
	Andy S. Rao	2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>*10/2/08*</u>.
2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-19* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some *   c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   Applicant's arguments filed on 10/2/08 with respect to claims 1-19 have been fully considered but they are not persuasive.

2.   Claims 1-4 (amended herewith) remain rejected under 35 U.S.C. 102(b) as being anticipated by Ribas-Corbera et al., (hereinafter referred to as "Ribas-Corbera").

3.   Claims 5-9 (amended herewith) are rejected under 35 U.S.C. 102(e) as being anticipated by Pejhan et al., (hereinafter referred to as "Pejhan").

4.   Claims 11-15 remain rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al., (hereinafter referred to as "Zhang"), as was set forth in the Office Action of 7/2/08.

5.   Claims 16-19 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Ribas-Corbera et al., (hereinafter referred to as "Ribas-Corbera") in view of Zhang et al., (hereinafter referred to as "Zhang"), as was set forth in the Office Action of 7/2/08.

6.   The Applicant presents seven arguments contending the Examiner's rejections claims 1-9, and 11-15 listed above. However, after a careful consideration of the arguments presented, and further scrutiny of the applied references, the Examiner must respectfully disagree, and maintain the applicability of the references as the basis of the grounds of the detailed rejection that follows this section, said detailed rejection specifically addressing the newly added limitations.

        After summarizing the current stage of prosecution (Amendment of 10/2/08: page 8, lines 1-11), summarizing the rejection concerning claim 1, (Amendment of 10/2/08: page 8, lines 12-16), and providing applicant's interpretation of this portion of the reference (Amendment of 102/08: page 8, lines 16-22), the Applicant's argue that Ribas-Corbera fails to address the "…a

frequency (intra-code) frames should be sent..." limitation as in the claim (Amendment of

10/2/08: page 8, lines 23-25). The Examiner flatly disagrees. It is noted that while the pertinent

citation of the reference concentrates upon varying the periodicity of the predictive P and B

frames within the structure an MPEG GOP (Ribas-Corbera: column 14, lines 17-31), the

teaching applies to all the types of the frames within the GOP, including the I frames (Ribas-

Corbera: column 14, lines 5-14). Note that the reference discloses establishing the make-up of

the I,P,B frames within the GOP based on the motion and syntax rates not just based on the two

predictive frames (Ribas-Corbera: column 14, lines 35-60), but based on all three of the frames

(Ribas-Corbera: column 17, lines 19-65). Accordingly, the Examiner maintains that the

limitation remains met.

Secondly, the Applicant's argue that Ribas-Corbera fails to disclose the "...selecting

between two frequency ranges for sending frames based on a comparison of bits/macroblock to a

fixed predetermined number..." limitation (Amendment of 10/2/08: page 8, lines 26-29), and

buttresses this argument the fact that the reference's assignment of the bits per frame is

continuously varying (i.e. and not switched between two predetermined fixed value) and based

upon the buffer fullness values (Amendment of 10/2/08: page 9, lines 1-28). The Examiner

respectfully disagrees. The assignment of bits depends not only upon buffer fill rates, but upon

buffer delays associated with a varying frame interval of coded frames (Ribas-Corbera: column

9, lines 15-50: i.e. "...the frequency ranges..."). Note, the reference discloses the results of

encoding sequences of varying GOP lengths (i.e. a collection of frames with (Ribas-Corbera:

column 11, lines 20-30), and further discloses the target bit rates are compared against the fixed

threshold numbers of the buffer overflow condition (Ribas-Corbera: column 9, lines 40-67;

column 10, lines 1-25). Accordingly, the Examiner maintains that the reference addresses the limitation.

Furthermore, after summarizing the Applicant's argument addressing further features of the claim under discussion (Amendment of 10/2/08: page 9, lines 29-33; page 10, lines 1-2), the Examiner notes that the specific mention of the limitation was discussed in detail in the referenced application #09/008,137 (US: Patent 6,111,991), which this reference incorporates in its entirety (Ribas-Corbera: column 11, lines 5-15), and in particular is how "…classes are assigned…" for encoding purposes.

Additionally, the Applicant's asserts that with regards to the specific rejection of claim 4 (Amendment of 10/2/08: page 10, lines 3-8), the Applicants argue that that this represents experimental data and doesn't address "…skipping the encoding of the next inter-coded frame..." limitation, as in claim (Amendment of 10/2/08: page 9, lines 9-17). The Examiner respectfully disagrees. What the also discloses the coder's ability to skip/drop frames for encoding as drastic measures for quickly resolving the overflow conditions (Ribas-Corbera: column 11, lines 40-45). Accordingly, the Examiner maintains that the limitation is met.

With regards to claims 5-9, the Applicant argues that Pejhan fails to disclose "variable parameters for each encoding mode…" as in the claims (Amendment of 10/2/08: page 10, lines 18-29), and bases this argument upon an accompanying analysis the cited section of the reference (Amendment of 10/2/08: page 10, lines 30-36; page 11, lines 1-5). The Examiner flatly disagrees. It is noted that the citation in question would called upon to show that the selection and application of a coding mode was called upon to read upon the coding algorithm of the limitation. The specific settings that can varied for coding algorithm application are: the motion

file for specifying the macroblock size (Pejhan: column 6, lines 55-67), motion estimation

computational costs (Pejhan: column 3, lines 3-21), client/server frame rate matching (Pejhan:

column 3, lines 25-45), real-time coding requirements (Pejhan: column 6, lines 45-55), and even

the desired motion determination metric (Pejhan: column 7, lines 10-25). All of these variables

are specified and used for coding mode selection and algorithm application at the server side

encoders. As such, the Examiner firmly maintains that this limitation is met by the reference.

Furthermore, the Applicant's argue that Pejhan fails to disclose a decoder having a

decoding algorithm with multiple variable parameters for changing different settings in the

decoding algorithm (Amendment of 10/2/08: page 11, lines 6-8). The Examiner respectfully

disagrees. It is noted that the decoder disclosed in the reference would configure the decoding

algorithm of a decoding mode selection and application in accordance with the same variables

considered at the encoder side on the server: the motion file for specifying the macroblock size

(Pejhan: column 6, lines 55-67), motion estimation computational costs (Pejhan: column 3, lines

3-21), client/server frame rate matching (Pejhan: column 3, lines 25-45), real-time coding

requirements (Pejhan: column 6, lines 45-55), and even the desired motion determination metric

(Pejhan: column 7, lines 10-25). In particular, it is duly noted that clients (i.e. decoders) have the

specific ability to specific frame rates at the client (Pejhan: column 3, lines 55-65), and also can

specify desired quantization parameters and target bit rates (Pejhan: column 7, lines 50-60). The

citation was relied upon to show the presence of a decoding element operation in concert with

the already established encoding element of the reference. Accordingly, the Examiner maintains

that the limitation remains met.

Lastly, after reproducing the rejection of claim 11 (Amendment of 10/2/08: page 11, lines

9-13), the providing applicant's interpretation of the reference (Amendment of 10/2/08: page 11,

lines 14-23), the Applicant argues that the reference fails to address the ROI (i.e. "...region of

interest...") limitation of the instant invention. The Examiner respectfully disagrees. It is noted

that the citation in question addresses the fact that Zhang discloses reads upon the device

limitation. For explicit disclosure upon the ROI allocation, the Examiner notes that the video

object coding allocation disclosed therein allows for quantization assignment according to which

video objects are more important than others (Zhang: column 10, lines 45-65). Said more

important video objects read upon the recited "...regions of interest..." limitation. Foreground

objects can be coded with finer quantization versus background objects (Zhang: column 14, lines

30-67). Accordingly, the Examiner maintains that the limitation remains met.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999

(AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002

do not apply when the reference is a U.S. patent resulting directly or indirectly from an

international application filed before November 29, 2000. Therefore, the prior art date of the

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA

35 U.S.C. 102(e)).

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

8.   Claims 1-4 (amended) are rejected under 35 U.S.C. 102(b) as being anticipated by Ribas-

Corbera et al., (hereinafter referred to as "Ribas-Corbera").

Ribas-Corbera disclose a method for adapting the number of encoded bits produced by a

codec to a system target bit-rate (Ribas-Corbera: column 2, lines 30-40), comprising:

determining if the system target bit-rate is such that bits-per-macroblock (Ribas-Corbera: column

14, lines 50-60) is less than a fixed predetermined number (Ribas-Corbera: column 9, lines 40-

67), if not, setting the frequency at which intra-coded frames are sent to a first predetermined

frequency range, allocating bits between intra-coded frames and inter-coded frames according to

a first predetermined allocation factor (Ribas-Corbera: column 13, lines 40-60), and adjusting

quantizer step sizes for the intra-coded and inter- coded frames, if so, setting the frequency at

which intra-coded frames are sent to a second predetermined frequency range that is lower than

the first predetermined frequency range, unless there is motion (Ribas-Corbera: column 10, lines

35-45) in more than a predetermined percentage of the macroblocks, in which case the sending

frequency of the intra-coded frames is set to the first fixed predetermined frequency range

(Ribas-Corbera: column 17, lines 35-65), and setting to zero transform coefficients having a zig-

zag index greater than or equal to a preset number in select intra-coded frame transform

coefficient blocks (Ribas-Corbera: column 13, lines 25-40), and not in other frame transform

coefficient blocks, wherein said intra-code frame transform coefficient blocks are identified by a

predetermined criteria (US Patent: 6,111,991 to Ribas-Cobera: column 3, lines 55-67; column 4,

lines 1-37), as in claim 1.

Regarding claim 2, Ribas-Corbera discloses wherein the criteria for identifying select

intra-coded frame transform coefficient blocks include (i) each luminance block with a DC

transform coefficient whose value exceeds a fixed predetermined number and (ii) each high-

activity block wherein the total absolute quantized level in select transform coefficients is less

than a preset fraction of the total absolute quantized level in all of the transform coefficients in

that block (US Patent 6,111,991 to Ribas-Corbera: column 6, lines 55-65).

Regarding claim 3, Ribas-Corbera discloses wherein the adjusting of the quantizer step

sizes comprises setting the quantizer step size for a particular type of frame to the average value

used over the last frame of the same type, and adjusting the quantizer step size for the current

frame of that type by comparing a partial bit-rate for that frame with a bit-rate range (Ribas-

Corbera: column 14, lines 10-30), as in the claim.

Regarding claim 4, Ribas-Corbera further disclose maintaining a count of the actual bits

used per frame, and, if the accumulated bit count exceeds a bit budget for a typical inter-coded

frame, skipping the encoding of the next inter-coded frame (Ribas-Corbera: column 11, lines 25-

45), as in the claim.

9.   Claims 5-9 (amended) are rejected under 35 U.S.C. 102(e) as being anticipated by Pejhan

et al., (hereinafter referred to as "Pejhan").

Pejhan discloses a codec (Pejhan: column 3, lines 20-30), comprising: an encoder (Pejhan: column 3, lines 27-31) that includes a first plurality of variable parameters (Pejhan: column 5, lines 1-6) including x/y search window (Pejhan: column 6, lines 45-67), skip mode protection (Pejhan: column 7, lines 54-63), half/full pel subsample factor (Pejhan: column 4, lines 25-30), transform truncation (Pejhan: column 5, lines 20-25), and motion estimation (Pejhan: column 5, lines 1-7) for specifying different settings at which a coding algorithm applied to incoming video data can operate (Pejhan: column 3, lines 5-21); and a decoder that includes a second plurality of variable parameters that includes chroma-skipping, and frame-display skipping (Pejhan: column 3, lines 45-60; column 4, lines 7-30) that are used to specify different settings at which a decoding algorithm applied to outgoing video data can operate (Pejhan: figure 1, element 114); wherein the codec is configured such that, during operation, at least one of the coding algorithm and decoding algorithm is able to dynamically change its operating setting according to available algorithm processing resources in response to actual complexity measurements performed at run-time (Pejhan: column 3, lines 10-20), as in claim 5.

Regarding claims 6 and 7, Pejhan discloses that the plurality of different settings at which the coding algorithm can operate is 9 and the at which the decoding algorithm can operate is 5 (Pejhan: column 6, lines 15-25), as in the claims.

Pejhan discloses an encoder (Pejhan: column 4, lines 5-25), comprising: an encoder (Pejhan: column 3, lines 27-31) that includes a first plurality of variable parameters (Pejhan: column 5, lines 1-6) including x/y search window (Pejhan: column 6, lines 45-67), skip mode protection (Pejhan: column 7, lines 54-63), half/full pel subsample factor (Pejhan: column 4, lines 25-30), transform truncation (Pejhan: column 5, lines 20-25), and motion estimation

(Pejhan: column 5, lines 1-7) for specifying different settings at which a coding algorithm is

applied to unencoded video data can operate (Pejhan: column 3, lines 5-21), wherein the encoder

is configured such that, during operation, at least one of the coding algorithm and decoding

algorithm is able to dynamically change its operating setting according to available algorithm

processing resources in response to actual complexity measurements performed at run-time

(Pejhan: column 3, lines 10-20), as in claim 8.

Pejhan discloses a decoder (Pejhan: figure 1, element 114)), comprising: a decoder that

includes a second plurality of variable parameters that includes a DCT algorithm (Pejhan:

column 4, lines 10-15: as executed in the decoder) chroma-skipping, and frame-display skipping

(Pejhan: column 3, lines 45-60; column 4, lines 7-30) that are used to specify different settings

at which a decoding algorithm applied to coded video data can operate (Pejhan: figure 1, element

114); wherein the decoder is configured such that, during operation, at least one of the decoding

algorithm and decoding algorithm is able to dynamically change its operating setting according

to available algorithm processing resources in response to actual complexity measurements

performed at run-time (Pejhan: column 3, lines 10-20), as in claim 9.

Conclusion

10.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing

date of this final action.

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The

examiner can normally be reached on Monday-Friday 8 hours.

    If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

    Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

                                        Andy S. Rao
                                        Primary Examiner
                                        Art Unit 2621

asr

/Andy S. Rao/
Primary Examiner, Art Unit 2621
December 19, 2008